

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: James Stoffer et al.

Examiner: Vickey Roncsi

Serial No.: 10/758,972

Group Art Unit: 1714

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5 Title: CORROSION RESISTANT COATINGS

10 Commissioner for Patents
P.O. Box 1450
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DECLARATION OF RICHARD ALBERS

15 I, Richard Albers, declare:

I have personal knowledge of the following, and, if called to as a witness I could testify thereto.

MY BACKGROUND

20 2. I am the Project Leader in Industrial Water Borne Coatings at Deft Inc. and have been in the employ of Deft Inc. for 32 years. I am a named inventor on several coatings patents and patent applications including US Patent Numbers 4,352,898; 4,495,317, 4,501,832, and US Patent Application Publication Number 2006/0063872. I am familiar with US Patent Application Ser. No. 10/758,972, the '972 Application, as well as the development, usages and properties of the claimed corrosion resistant coatings.

25 3. Due to my long time experience in the coatings industry, I am knowledgeable with regard to the development of non-chromate based coatings. I have a masters degree in Chemistry from California State University, Fresno ("Fresno State"). After graduation, I worked for 10 years at DeSoto Corporation as a resin Chemist. I started to work at Deft in December of 1975. I have worked on the development of aircraft primers since I began work at Deft in 1975. At Deft,
30 I developed a water reducible primer system as well as other solvent based primers. The water reducible primer system I developed at Deft is at least 50% of the US primer market and is used on the majority of commercial and military aircraft. I am currently employed by Deft Inc., the licensee of the '972 Application, and have been involved in the development of Deft's non

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chrome primers which use the claimed corrosion resistant coatings of the '972 Application. I am, therefore, very familiar with the requirements for a non chrome primer.

LONG FELT NEED

4. Deft is presently using the invention, within the scope of the broadest claims of the
- 5 '972 Application to manufacture non chrome primers. Deft is currently manufacturing non chrome primers containing a praseodymium oxide and an extender (calcium sulfate) in a composition that is curable without the addition of heat. These primers were developed for use on military aircraft as a substitute for the historically used chromate based primers to comply with OSHA permissible exposure limits for chromium.
- 10 5. There has been a long felt need for a non chrome primer with performance characteristics similar to those of chrome containing primers. Many, including myself, unsuccessfully tried to develop such a primer. Prior to discovering the superior performance of using the coatings claimed in the '972 Application, I experimented at Deft with many other systems, beginning in about 1995. An example of non chrome containing corrosion-inhibiting
- 15 systems I tested at Deft tested are listed below.

| <u>DEFT CODE</u> | <u>SUPPLIER</u> | <u>PRODUCTION CODE</u> |
|------------------|-----------------|--------------------------|
| PX-104 | LAPORT | PHOSGUARD-ACTIROX J-0806 |
| ---- | LAPORT | PHOSGUARD-ACTIROX J-0813 |
| PX-105 | LAPORT | PHOSGUARD-ACTIROX J-0815 |
| PX-033 | HEUBACH | ZP-10 ZINC PHOSPHATE |
| PX-081 | HEUBACH | HEUCOPHOS ZCPP |
| PX-116 | HEUBACH | HEUCOPHOS ZMP |
| PX-093 | HALOX | SZP-391 |
| PX-120 | WAYNE PIG. | WAYNECOR 204 |
| PX-135 | WAYNE PIG. | HYDROTALCITE |
| PX-084 | BUCKMAN LAB | BUTROL 9104 |
| PX-106 | BUCKMAN LAB | BUTROL 9140 |
| PX-103 | TAYCA CORP. | K-WHITE 140W |
| ---- | TAYCA CORP. | K-WHITE TC710 |
| ---- | TAYCA CORP. | K-WHITE 108 |

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|--------|------------|-------------|
| PX-059 | W.R. GRACE | SHIELDDEX |
| ---- | SNZC | NOVINOK D7M |
| ---- | SNZC | XP 10120D7 |
| ---- | SNZC | XP 01010STP |
| ---- | SNZC | XP CA08020 |
| ---- | SNZC | XP FH02020 |

6. None of the systems I tested performed to our satisfaction, lacking either in corrosion inhibiting capability, application to the substrate, or both.

5 7. Deft subsequently licensed the technology that is the subject of the 'and we use the compositions that are the subject matter of the broadest claims of the '972 Application in Deft's non chrome primers.

10 8. The use of the corrosion inhibitors claimed in the '972 Application (the "UMR technology") in our primer system, specifically, a praseodymium oxide and a calcium sulfate extender, overcame the shortcomings that we experienced with the other corrosion inhibitors we tested. Until we tested the UMR technology, a non chrome based primer that had similar or better performance had not been found, despite years of research looking for a suitable substitute.

15 9. Deft's non chrome primers have advantages not found in any other non-chrome primer known to me. These advantages are that incorporating a rare earth corrosion inhibitor, in particular praseodymium oxides, results in coating compositions with good or excellent corrosion resistance performance. Excellent corrosion resistance is achieved with the addition of a sulfate extender, particularly calcium sulfate, e.g., gypsum. Deft has not found another corrosion inhibitor that performs suitably for military applications. Deft's non chrome primers have good adhesion to metal substrates, in particular aluminum and aluminum alloys, and Deft's non chrome primers provide excellent weathering resistance and durability when applied to a
20 substrate. Finally, Deft's non-chrome primers more than comply with current chromate environmental standards in that they are chrome free, thus reducing the risk to workers and the cost of environmental clean up.

10. For a period of at least 10 years, in a highly competitive field, no company, including Deft, arrived at a satisfactory replacement for chromate based coatings for aluminum aircraft. In

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my opinion, the corrosion inhibiting coating composition claimed in the '972 Application was not obvious. That is, notwithstanding the great need for a successful non-chrome primer, that met performance, environmental, and toxicity standards, and notwithstanding my long standing search for a solution to the shortcomings of prior non-chrome based corrosion inhibiting systems, it was not until the inventors of this invention discovered that the use of a praseodymium oxide as a corrosion inhibitor in a primer coating produced a successful corrosion inhibiting coating, that a non-chrome primer became a practical reality as a substitute for chromate based primers. That is why Delf has taken a license in the '972 Application.

I declare that all statements made herein of my own knowledge are true and all statements made on information or belief are believed to be true, and further, that the statements herein were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the application or document or any patent resulting therefrom.

Executed this 9th day of September 2008 at

IRVINE, California.

Richard Albers
Richard Albers
Project Leader
Industrial Water Borne Coatings
Delf Inc.